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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/992,849 | 11/12/2001 | Larry Fabiny | 019930-005600US | 7263 |

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EXAMINER

LAVARIAS, ARNEL C

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| | 2872 |

DATE MAILED: 06/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/992,849 | FABINY ET AL. | |
| | Examiner | Art Unit | |
| | Arnel C. Lavarias | 2872 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 05 May 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2,4-10,12-19 and 27-29 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,2,4-10,12-19 and 27-29 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 05 May 2003 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on 05 May 2003 is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, Claims 1-19, 27-29, in Paper No. 4, dated 5/5/03, is acknowledged.
2. Claims 20-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4, dated 5/5/03.

Drawings

3. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 5/5/03 in Paper No. 4 have been approved.
4. The corrected or substitute drawings were received on 5/5/03 in Paper No. 4. These drawings are acceptable.

Response to Amendment

5. The amendments to the specification of the disclosure in Paper No. 4, dated 5/5/03, are acknowledged and accepted. In view of these amendments, the objections to the specification of the disclosure in Section 9 of Paper No. 3, dated 2/5/03, are respectfully withdrawn.
6. The amendments to Claims 1, 9, and 17 in Paper No. 4, dated 5/5/03, are acknowledged and accepted.

7. The cancellation of Claims 3, 11, 20-26 in Paper No. 4, dated 5/5/03, is acknowledged and accepted.

Response to Arguments

8. The Applicants argue that Kleeman et al. fails to teach or reasonably suggest the lamellar diffraction grating for C-band optical telecommunication use comprising an arrangement of generally rectangular protrusions spaced along the substrate at an average grating period a that corresponds to a line density $1/a$ between 700 and 1100 mm^{-1} . In view of the Applicants' arguments (See Section 4a in Paper No. 4, dated 5/5/03), the Examiner agrees, and respectfully withdraws the rejections to Claims 1-19 in Paper No. 3, dated 2/5/03.
9. The Applicants argue that Kleeman et al. fails to teach or reasonably suggest a wavelength router including a reflective lamellar diffraction grating, as recited in Claim 27. In view of the Applicants' arguments (See Section 4c in Paper No. 4, dated 5/5/03), the Examiner agrees, and respectfully withdraws the rejections to Claims 27-29 in Paper No. 3, dated 2/5/03.
10. Claims 1-2, 4-10, 12-19, and 27-29 are rejected as follows.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
- A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1-2, 4, 8-10, 12, and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Barton et al. (U.S. Patent Application No. US2003/0067687A1).

Barton et al. discloses a lamellar reflection diffraction grating for C-band optical telecommunication use (See Figures 3-4; paragraphs 0009-0013) comprising a substrate (See 40, 42 in Figure 3); and an arrangement of generally rectangular protrusions (See 44, 46 in Figure 3) spaced along the substrate at an average grating period a that corresponds to a line density $1/a$ between 700 and 1100 mm^{-1} (See paragraph 0028, corresponding to a line density of approximately 833 mm^{-1}) such that $h/a > 0.5$ (See paragraph 0028, corresponding to $h/a = 0.833$), and $w/a < 0.5$ (See paragraph 0028, corresponding to $w/a = 0.45$). Barton et al. additionally discloses the generally rectangular protrusions having substantially equal heights and widths, and the widths of each protrusion being defined by the FWHM measurement of a profile of such protrusion (See Figure 3).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 5-7, 13-15, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barton et al.

Barton et al. discloses the invention as set forth above in Claims 1, 9, and 17, except for w/a being between 0.22 and 0.30 and h/a being between 0.84 and 0.96. It would have been obvious to one having ordinary skill in the art to adjust either a , h , or w such that w/a is between 0.22 and 0.30 and h/a is between 0.84 and 0.96, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to adjust either a , h , or w such that w/a is between 0.22 and 0.30 and h/a is between 0.84 and 0.96 for the purpose of adjusting the diffraction efficiency of the grating with reduced loss and polarization sensitivity over the wavelength range of interest. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235.

15. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoose et al. (U.S. Patent Application No. 2002/0186926A1) in view of Barton et al.

Hoose et al. discloses a wavelength router (See Figures 2-6) for receiving, at an input port (See for example 37 in Figure 3), light (See 31 in Figure 3) having a plurality of spectral bands and directing subsets of the spectral bands to respective ones of a plurality of output ports (See for example 38 in Figure 3; P, P' in Figure 4), the wavelength router comprising a free-space optical train (See 34, 36, 38 in Figure 3) disposed between the input port and the output ports providing optical paths for routing the spectral bands, the optical train including a reflective lamellar diffraction grating (See 36 in Figure 3; paragraph 0044) disposed to intercept light traveling from the input port. Hoose et al.

lacks the reflective lamellar diffraction grating having an arrangement of generally rectangular protrusions spaced along a substrate at an average grating period a that correspond to a line density $1/a$ between $700-1100 \text{ mm}^{-1}$ such that $h/a > 0.5$ and $w/a < 0.5$. However, Barton et al. teaches the lamellar reflection diffraction grating as set forth above which is useful for DWDM applications in the C-band telecommunications wavelength window (See paragraphs 0004-0013). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the lamellar reflection diffraction grating of Barton et al. for the diffraction grating in the wavelength router of Hoose et al. One would have been motivated to do this to provide a diffracting element that exhibits very high diffraction efficiency and reduced loss and polarization sensitivity over the wavelength range of interest.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 703-305-4007. The examiner can normally be reached on M-F 8:30 AM - 5 PM EST.

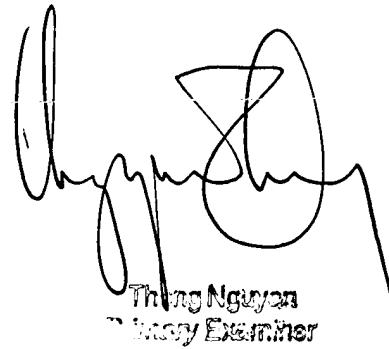
If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Art Unit: 2872

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.



Arnel C. Lavarias
June 20, 2003



Thang Nguyen
Primary Examiner